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Notice of Allowability

Application No.

10/655,026

Examiner

Allen C. Ho

Applicant(s)

HOHEISEL ET AL.

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 03 May 2005.
2. ☒ The allowed claim(s) is/are 1-38.
3. ☒ The drawings filed on 05 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Allen C. Ho
Primary Examiner
Art Unit: 2882

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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Andrew Waxman (Reg. No. 56,007) on 08 August 2005.

Claims 1, 2, 11, and 31 have been amended as follows:

1. (Currently Amended) A method for producing at least one of an antiscatter grid and collimator for a radiation type, formed from a base body of predeterminable geometry having transmission channels for primary radiation of the radiation type which extend between two opposite surfaces of the base body, comprising:

setting the geometry of the base body;

constructing the base body according to the set geometry by use of a rapid prototyping technique through layer-wise solidification of a structural material, the structural material being substantially transmissive to the radiation type, under the action of radiation; and

coating inner surfaces of the base body in the transmission channels with a material, which strongly absorbs the radiation type, up to a layer thickness which suffices to absorb virtually completely incident secondary radiation of the radiation type, wherein the opposite surfaces of the base body have, at most, ~~are not coated nor aftertreated in such a way that they bear, at most,~~ a coating of greatly reduced layer thickness made from the material strongly

absorbing the radiation type and having a thickness not greater than the thickness of the coating on the inner surfaces.

2. (Currently Amended) A method for producing at least one of an antiscatter grid and collimator for a radiation type, formed from a base body of predeterminable geometry having transmission channels for primary radiation of the radiation type which extend between two opposite surfaces of the base body, comprising:

setting the geometry of the base body;

constructing a molding according to at least one of the set geometry of the base body and a negative mold thereof by use of a rapid prototyping technique through layer-wise solidification of a structural material under the action of radiation;

producing at least a single replication of the molding in order to form the base body from a material which is substantially transmissive to the radiation type; and

coating the base body with a material, which strongly absorbs the radiation type, up to a layer thickness which suffices to absorb virtually completely incident secondary radiation of the radiation type, wherein the opposite surfaces of the base body have, at most, ~~are not coated, nor aftertreated in such a way that they bear, at most, a coating of greatly reduced layer thickness made from the material strongly absorbing the radiation type and having a thickness not greater than the thickness of the coating on the inner surfaces.~~

11. (Currently Amended) An antiscatter grid for a radiation type, comprising:

a base body of predeterminable geometry including transmission channels for primary radiation of the radiation type which extend between two opposite surfaces of the base body, the base body being formed from a first material which is substantially transmissive to the radiation

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type, wherein inner surfaces of the base body are coated in the transmission channels with a second material which strongly absorbs the radiation type up to a layer thickness which suffices to virtually completely absorb incident secondary radiation of the radiation type, and wherein the opposite surfaces of the base body bear, at most, only a coating which is made from the second material, strongly absorbing the radiation type, and wherein the coating on the opposite surfaces of the base body has~~have~~ a layer thickness, which is less than the layer thickness of the second material on the inner surfaces.

31. (Currently Amended) A collimator for a radiation type, comprising:

a base body of predeterminable geometry including transmission channels for primary radiation of the radiation type which extend between two opposite surfaces of the base body, the base body being formed from a first material which is substantially transmissive to the radiation type, wherein inner surfaces of the base body are coated in the transmission channels with a second material which strongly absorbs the radiation type up to a layer thickness which suffices to virtually completely absorb incident secondary radiation of the radiation type, and wherein the opposite surfaces of the base body bear, at most, only a coating which is made from the second material, strongly absorbing the radiation type, and wherein the coating on the opposite surfaces of the base body has~~have~~ a layer thickness, which is less than the layer thickness of the second material on the inner surfaces.

Allowable Subject Matter

2. Claims 1-38 are allowed.
3. The following is an examiner's statement of reasons for allowance:

With regard to claims 1, 3-10, and 24-29, although the prior art discloses a method comprising the steps of setting the geometry of the base body and constructing the base body according to the set geometry by use of a rapid prototyping technique through layer-wise solidification of a structural material, the structural material being substantially transmissive to the radiation type, it fails to teach or fairly suggest the step of coating inner surfaces of the base body in the transmission channels with a material, which strongly absorbs the radiation type, up to a layer thickness which suffices to absorb virtually completely incident secondary radiation of the radiation type, wherein the opposite surfaces of the base body have, at most, a coating made from the material strongly absorbing the radiation type and having a thickness not greater than the thickness of the coating on the inner surfaces as claimed in claim 1.

With regard to claims 2 and 16-23, the prior art fails to teach or fairly suggest a method for producing at least one of an antiscatter grid and collimator comprising constructing a negative mold by using a rapid prototyping technique through layer-wise solidification of a structural material under the action of radiation and producing at least a single replication of the molding in order to form the base body from a material which is substantially transmissive to the radiation type as claimed in claim 2.

With regard to claims 11-15, 30, and 37, although the prior art discloses an antiscatter grid comprising a base body including transmission channels extending between two opposite surfaces of the base body, the base body being formed from a first material which is substantially transmissive to the radiation type, wherein inner surfaces of the base body are coated in the transmission channels with a second material which strongly absorbs the radiation type up to a layer thickness, and wherein the opposite surfaces of the base body bear a coating which is made

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from the second material, it fails to teach or fairly suggest that coating on the opposite surfaces of the base body has a layer thickness, which is less than the layer thickness of the second material on the inner surfaces as claimed in claim 11.

With regard to claims 31-36 and 38, although the prior art discloses a collimator comprising a base body including transmission channels extending between two opposite surfaces of the base body, the base body being formed from a first material which is substantially transmissive to the radiation type, wherein inner surfaces of the base body are coated in the transmission channels with a second material which strongly absorbs the radiation type up a layer thickness, and wherein the opposite surfaces of the base body bear a coating which is made from the second material, it fails to teach or fairly suggest that the coating on the opposite surfaces of the base body has a layer thickness, which is less than the layer thickness of the second material on the inner surfaces as claimed in claim 31.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

4. Applicant's arguments filed 03 May 2005 with respect to claims 1, 3-15, and 24-36 have been fully considered and are persuasive. The rejection of claims 1, 3-15, and 24-36 as being anticipated by Souchay *et al.* has been withdrawn.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Hoheisel *et al.* (U. S. Patent No. 6,847,701) disclosed an x-ray detector with an applied stray radiation grid.
- (2) Gervasi (U. S. Patent No. 6,309,581 B1) disclosed a method of making three dimensional object.
- (3) Zarnoch *et al.* (U. S. Patent No. 5,581,592) disclosed an anti-scatter x-ray grid comprising a coating.
- (4) Logan *et al.* (U. S. Patent No. 5,455,849) disclosed an air-core grid for scattered x-ray rejection.
- (5) Tosswill *et al.* (U. S. Patent No. 4,125,776) disclosed a collimator for x and gamma radiation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen C. Ho
Primary Examiner
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04 August 2005